

SIGNALING SUPPORT FOR DEVICES WITH MULTIPLE AND/OR FLEXIBLE FORM FACTORS

BACKGROUND

[0001] 1. Field

[0002] Embodiments of the invention generally relate to wireless communications networks, such as, but not limited to, the Universal Mobile Telecommunications System (UMTS) Terrestrial Radio Access Network (UTRAN), Long Term Evolution (LTE) Evolved UTRAN (E-UTRAN), and/or LTE-Advanced (LTE-A). Some embodiments may specifically relate to support for multi-form and/or flexible devices in such communications networks.

[0003] 2. Description of the Related Art

[0004] Universal Mobile Telecommunications System (UMTS) Terrestrial Radio Access Network (UTRAN) refers to a communications network including base stations, or Node Bs, and for example radio network controllers (RNC). UTRAN allows for connectivity between the user equipment (UE) and the core network. The RNC provides control functionalities for one or more Node Bs. The RNC and its corresponding Node Bs are called the Radio Network Subsystem (RNS). In case of E-UTRAN (enhanced UTRAN) no RNC exists and most of the RNC functionalities are contained in the eNodeB (enhanced Node B).

[0005] Long Term Evolution (LTE) or E-UTRAN refers to improvements of the UMTS through improved efficiency and services, lower costs, and use of new spectrum opportunities. In particular, LTE is a 3GPP standard that provides for uplink peak rates of at least 50 megabits per second (Mbps) and downlink peak rates of at least 100 Mbps. LTE supports scalable carrier bandwidths from 20 MHz down to 1.4 MHz and supports both Frequency Division Duplexing (FDD) and Time Division Duplexing (TDD).

[0006] As mentioned above, LTE is also expected to improve spectral efficiency in 3G networks, allowing carriers to provide more data and voice services over a given bandwidth. Therefore, LTE is designed to fulfill future needs for high-speed data and media transport in addition to high-capacity voice support. Advantages of LTE are, for example, high throughput, low latency, FDD and TDD support in the same platform, an improved end-user experience, and a simple architecture resulting in low operating costs.

[0007] Further releases of 3GPP LTE (e.g., LTE Rel-10, LTE Rel-11, LTE Rel-12) are targeted towards future international mobile telecommunications advanced (IMT-A) systems, referred to herein for convenience simply as LTE-Advanced (LTE-A).

[0008] LTE-A is directed toward extending and optimizing the 3GPP LTE radio access technologies. A goal of LTE-A is to provide significantly enhanced services by means of higher data rates and lower latency with reduced cost. LTE-A can be considered a more optimized radio system fulfilling the international telecommunication union-radio (ITU-R) requirements for IMT-Advanced while keeping the backward compatibility.

SUMMARY

[0009] One embodiment is directed to a method including determining, by a device having multiple forms and associated with a network, a current form or a change in the form of

the device, determining new parameters according to the determined current form of the device, and reporting the new parameters to the network.

[0010] Another embodiment is directed to an apparatus. The apparatus includes at least one processor and at least one memory comprising computer program code. The apparatus may include a device having multiple forms and associated with a network. The at least one memory and the computer program code are configured, with the at least one processor, to cause the apparatus at least to determine a current form or a change in the form of the apparatus, determine new parameters according to the determined current form of the apparatus, and report the new parameters to the network.

[0011] Another embodiment is directed to a computer program, embodied on a computer readable medium, wherein the computer program is configured to control a processor to perform a process. The process includes determining, by a device having multiple forms and associated with a network, a current form or a change in the form of the device, determining new parameters according to the determined current form of the device, and reporting the new parameters to the network.

[0012] Another embodiment is directed to a method including receiving, by a network element, new parameters from a device having multiple forms. The method may then include updating radio configurations for the device having multiple forms, based on the new parameters.

[0013] Another embodiment is directed to an apparatus. The apparatus includes at least one processor and at least one memory comprising computer program code. The at least one memory and the computer program code are configured, with the at least one processor, to cause the apparatus at least to receive new parameters from a device having multiple forms, and to update radio configurations for the device having multiple forms, based on the new parameters.

[0014] Another embodiment is directed to a computer program, embodied on a computer readable medium, wherein the computer program is configured to control a processor to perform a process. The process includes receiving, by a network element, new parameters from a device having multiple forms. The process may then include updating radio configurations for the device having multiple forms, based on the new parameters.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] For proper understanding of the invention, reference should be made to the accompanying drawings, wherein:

[0016] FIG. 1 illustrates an example of a device, according to one embodiment;

[0017] FIG. 2 illustrates an example of a signaling diagram, according to an embodiment;

[0018] FIG. 3 illustrates an example of flow chart of a method, according to one embodiment;

[0019] FIG. 4a illustrates a block diagram of an apparatus according to one embodiment;

[0020] FIG. 4b illustrates a block diagram of an apparatus according to another embodiment; and

[0021] FIG. 5 illustrates an example of flow chart of a method, according to another embodiment.

DETAILED DESCRIPTION

[0022] It will be readily understood that the components of the invention, as generally described and illustrated in the